



California
Energy Commission
Research & Development

GFO-18-503 Pre-Application Workshop

Advancing Natural Gas Energy Efficiency Research
in Existing Buildings and Baking Industry
Energy Research and Development Division

January 11, 2019
Amir Ehyai





Agenda

Time	Item
10:00 am	Welcome and Introduction
10:05 am	Solicitation Background <ul style="list-style-type: none">• Natural Gas Research Program• Purpose of Solicitation• Available Funding
10:25 am	Application Requirements <ul style="list-style-type: none">• Project Group Requirements• Attachments• Submission Process
11:00 am	Q&As
12:00 pm	Adjourn



Housekeeping

- ▶ In case of emergency
- ▶ Facilities
- ▶ Sign-in sheet
- ▶ Updates on solicitation documents including this presentation will be posted at the Grant Funding Opportunity's webpage:
<https://www.energy.ca.gov/contracts/pier.html#GFO-18-503>



Commitment to Diversity

The Energy Commission adopted a resolution strengthening its commitment to diversity in our funding programs. We continue to encourage disadvantaged and underrepresented businesses and communities to engage in and benefit from our many programs.

To meet this commitment, Energy Commission staff conducts outreach efforts and activities to:

- ▶ Engage with disadvantaged and underrepresented groups throughout the state.
- ▶ Notify potential new applicants about the Energy Commission's funding opportunities.
- ▶ Assist applicants in understanding how to apply for funding from the Energy Commission's programs.
- ▶ Survey participants to measure progress in diversity outreach efforts.

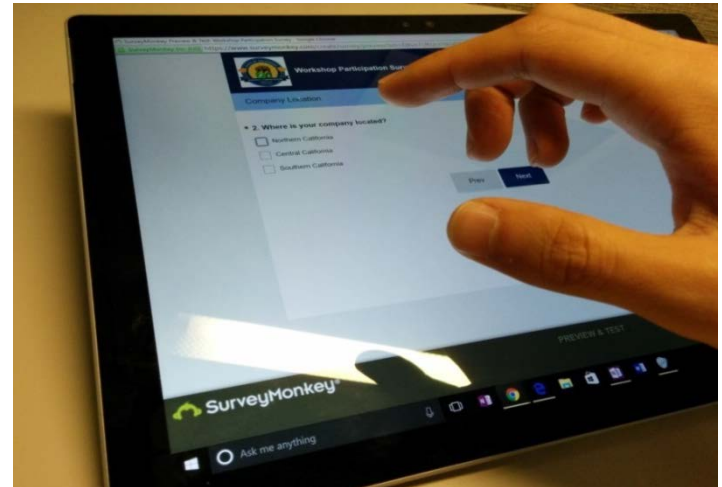
We Want to Hear From You!

1 Minute Survey

The information supplied will be used for public reporting purposes to display anonymous overall attendance of diverse groups.

- ▶ WebEx participants, please use this link:
<https://www.surveymonkey.com/r/CEC-01-11-2019>
- ▶ iPads are being passed around the room

Thanks!

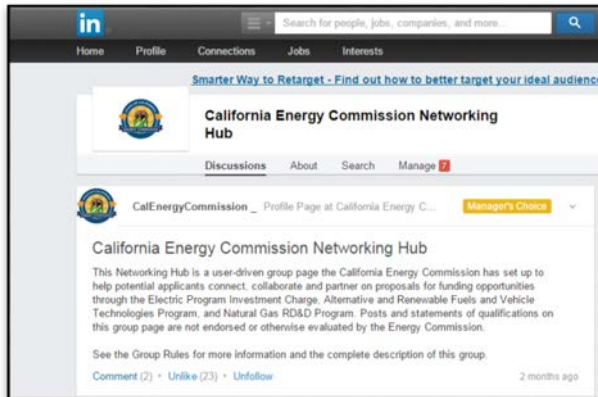




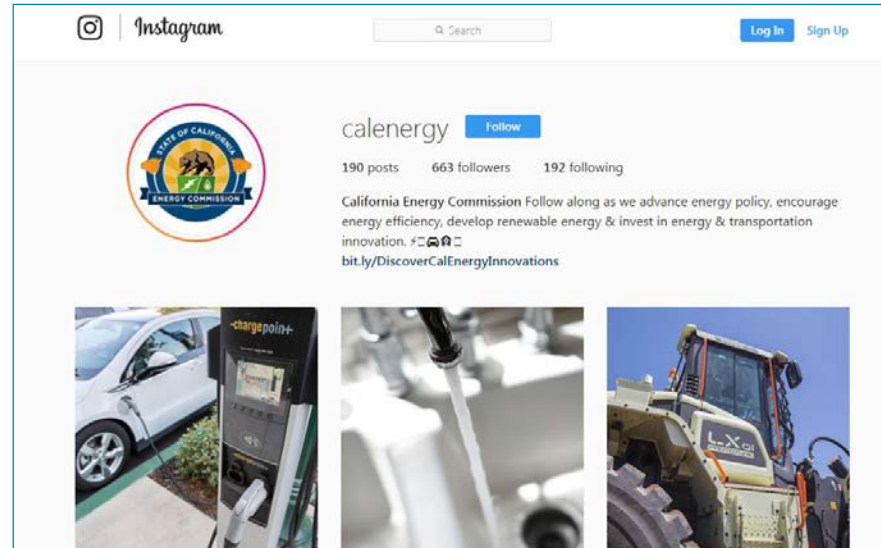
Connecting With Us



Twitter



LinkedIn



Instagram



Find Partners via LinkedIn



- ▶ The Energy Commission has created a user-driven LinkedIn group page to help potential applicants connect, collaborate, and partner on proposals for research funding opportunities. Participants may subscribe to the "California Energy Commission Networking Hub" by clicking on this link <https://www.linkedin.com/groups/6925861/profile> or searching LinkedIn.
- ▶ By subscribing you can connect with new colleagues and peers.



LinkedIn Networking Webinar

This virtual networking webinar is an opportunity for interested applicants to introduce themselves, explain their interests in this solicitation, and what they seeking from potential project partners. Individuals are encouraged to participate to leverage their connections.

The one-hour webinar will be held on **Thursday, January 17** at **2:00 p.m.**

Go to <https://energy.webex.com> and enter **Meeting Number: 492 360 831**
No password is required. Attendees may participate via telephone by calling (866) 469-3239 and entering meeting number **492 360 831**.

Subscribe to the subgroup: <https://www.linkedin.com/groups/13658530/>

NOTE:

- ▶ Energy Commission staff will facilitate introductions.
- ▶ Staff involved in development of the solicitation and scoring of proposals will not be present.
- ▶ Staff will not provide answers to questions on GFO-18-503.
- ▶ All questions must be submitted to the Contract Agreement Officer.



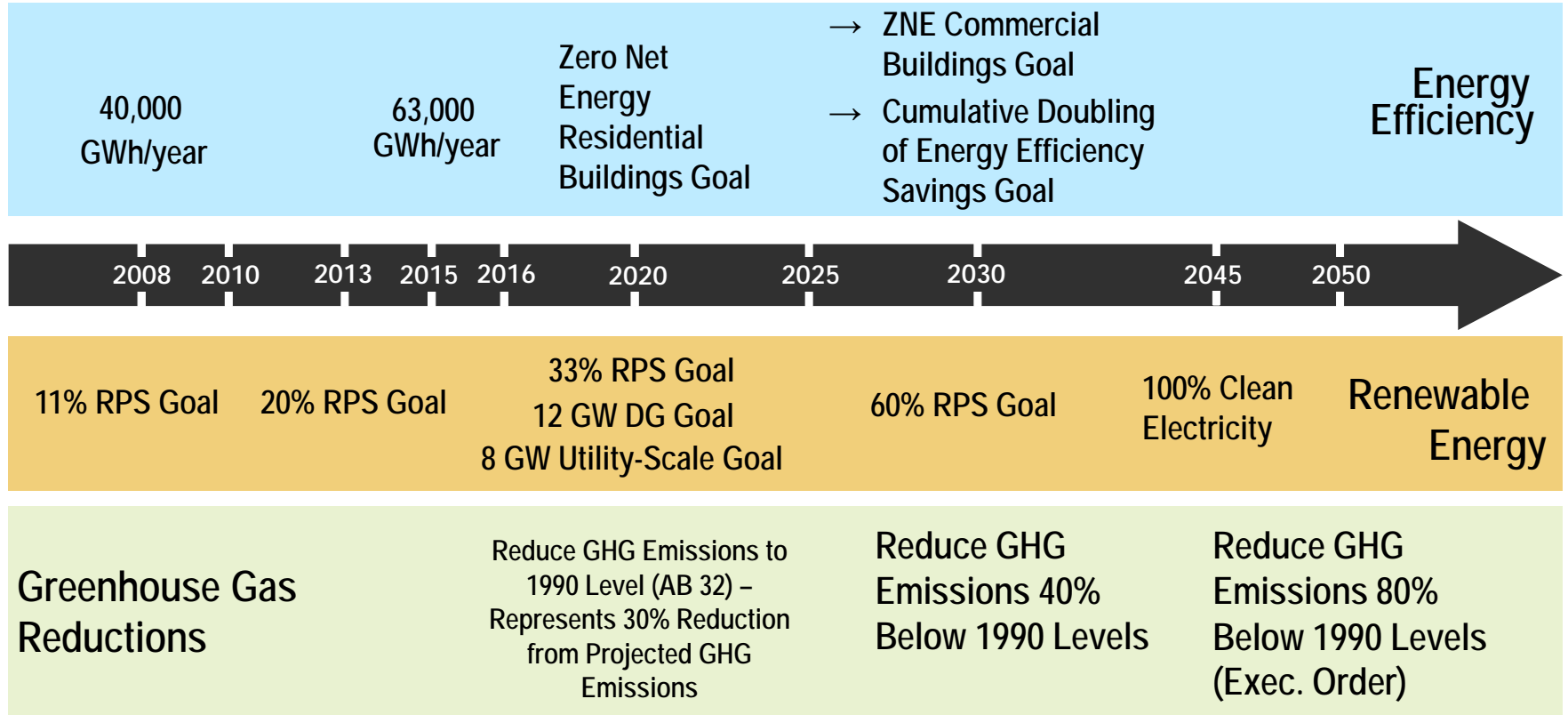


Natural Gas Research Program

- ▶ The Natural Gas Research, Development and Demonstration Program is funded by a natural gas ratepayer surcharge.
 - ▶ **Established** by the California Public Utilities Commission (CPUC) in 2004
 - ▶ **Budget:** \$24 million annually
 - ▶ **Purpose:** Benefit the ratepayers of natural gas investor-owned utilities*
 - ▶ **Focus:**
 - Drive large-scale customer adoption of energy efficient and low-carbon technology solutions for natural gas end-uses that will be challenging to decarbonize
 - Minimize air quality impacts from natural gas end-uses to zero or near-zero levels
 - ▶ **Objective:** Technological advancement and breakthroughs to overcome the barriers that prevent the achievement of the state's statutory energy goals

*Pacific Gas and Electric Co., San Diego Gas and Electric Co., and Southern California Gas Company

State Energy Policy Drivers





Purpose of Solicitation

Reduce **natural gas use** and **GHG** emissions in CA **existing buildings** and **industrial bakeries**.

- ▶ **How?** Develop, demonstrate, and validate energy savings from advanced energy saving technologies and strategies for these sectors.
- ▶ **Eligible:** Energy efficiency measures that save/reduce natural gas on site.
- ▶ **Not Eligible:** Energy generation, such as cogeneration and fuel cells, and use of renewable energy, storage technologies or fuel switching are not eligible for funding.



Available Funding

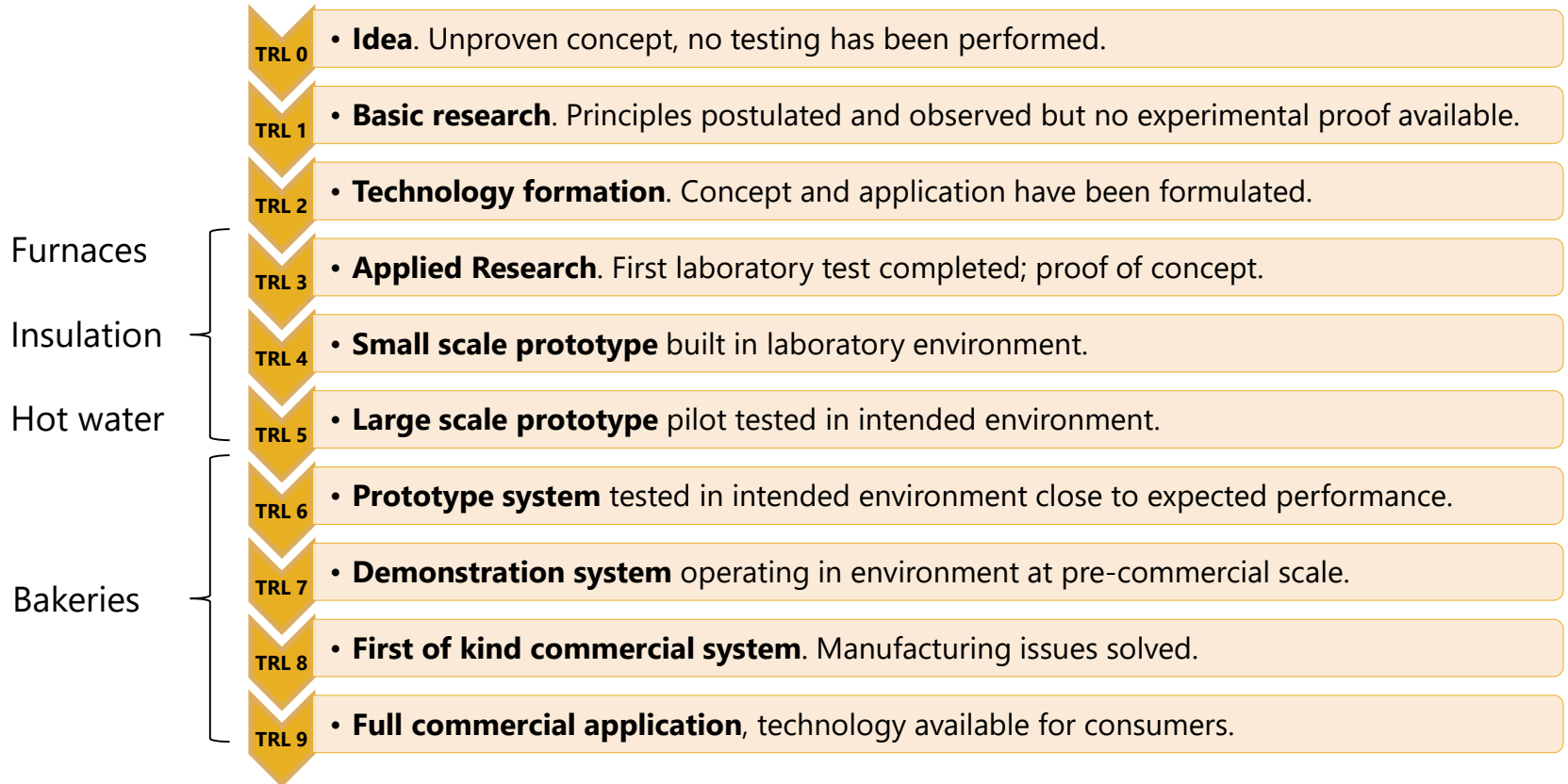
Project Group	Available Funding	Minimum Award Amount	Maximum Award Amount
<u>Group 1:</u> Demonstrate and deploy pre-commercial or emerging energy efficient and GHG emission reducing technologies for the commercial, wholesale and industrial baking sector	\$4,400,000	\$1,000,000	\$4,400,000
<u>Group 2:</u> Improve efficiency and reduce GHG and other emissions from residential room and wall heaters	\$2,000,000	No Minimum	\$2,000,000
<u>Group 3:</u> Improve hot water distribution system efficiency in existing homes	\$1,500,000	No Minimum	\$1,500,000
<u>Group 4:</u> Develop advanced insulation for existing homes using phase change materials	\$1,570,000	No Minimum	\$1,570,000



Match Funding

- ▶ **Group 1:** 20% match funding is required.
- ▶ **Groups 2, 3 and 4:** Match funding is optional.
- ▶ **All:**
 - ▶ Applications that include additional match funding will receive bonus points during the scoring phase.
 - ▶ Match funding contributors must submit match funding commitment letters that meet the requirements of Attachment 11. Failure to do so will disqualify the match funding commitment from consideration.
 - ▶ Energy Commission funds cannot be used for out-of-state travel or travel to conferences.
 - ▶ Refer to Section I.F.2 in the Solicitation Manual for more details on match funding.

Technology Readiness Level (TRL)





Group 1: Commercial, Wholesale, and Industrial-Sized Bakeries

Focus: Bakeries

Funding Amount: \$4,400,000

Background:

- ▶ California's baking industry consumes about 60 million therms of natural gas annually, and emits over 300,000 metric tons of CO₂e.
- ▶ Potential for improvements: about 70 percent of total energy used by bakeries adds no value to the final product.
- ▶ Examples of potential research:
 - Advanced insulation and reflective coatings have potential for 25 percent energy savings.
 - Process optimization, advanced programming and controls can reduce energy use by 20 percent.
 - Improved heat recovery technology also have the potential of reducing energy use by 20 percent.



Group 1: Commercial, Wholesale, and Industrial-Sized Bakeries

Requirements:

- ▶ Minimum one demonstration site in California natural gas IOU service territory.
- ▶ Provide 20% or more in match share.
- ▶ Payback of 5 years or less
- ▶ Technology must be past proof-of-concept and ready to demonstrate under real-world operating conditions (TRL 6-9).
- ▶ Must have at least 500 hours of performance testing (e.g., field, lab, bench-scale, pilot-scale) and have verified data to justify the technology is ready for demonstration.
- ▶ Pathway to commercialization in California with support from potential manufacturing partners and industry.
- ▶ Must meet local air quality management district requirements.



Group 1: Commercial, Wholesale, and Industrial-Sized Bakeries

Possible ways to strengthen proposal:

- ▶ Demonstrate ancillary benefits of the project: benefits for disadvantaged communities, improved safety and reliability, etc.
- ▶ Demonstrate technology adaptability beyond the specific application.
- ▶ Describe the potential market size for the demonstrated technologies in California.
- ▶ Describe potential future of the project and benefits for California ratepayers beyond the solicitation period.
- ▶ Demonstrate technology high potential to reduce GHG emissions for this sector if broadly adopted.



Group 2: Improve Efficiency and Reduce GHG and Other Emissions From Residential Room and Wall Heaters

Focus: Room and Wall Heaters

Funding Amount: \$2,000,000

Background:

- ▶ Federally regulated product with low minimum efficiency standards.
- ▶ Wall and room heaters found in many multifamily and small single family homes—potentially higher prevalence of use in low-income communities.
- ▶ Limited information on population and operational performance makes it difficult to determine extent of a problem.
- ▶ Potential solutions also not well known.
- ▶ Potential health and safety concerns not well understood.



Group 2: Improve Efficiency and Reduce GHG and Other Emissions From Residential Room and Wall Heaters

Requirements:

- ▶ Applied Research and Development Project (TRL 3-5).
- ▶ Identify population and operational performance.
- ▶ Determine prevalence in disadvantaged and low-income communities.
- ▶ Monitor energy and indoor air quality performance in two existing residences (single family home or multifamily dwelling).
- ▶ Identify new materials or alternative designs to reduce new or retrofit equipment and installation costs.
- ▶ Test alternative units or designs in two residential test sites
- ▶ Monitoring and test sites must be in PG&E, SDG&E or SoCal Gas natural gas service territory.



Group 2: Improve Efficiency and Reduce GHG and Other Emissions From Residential Room and Wall Heaters

Possible ways to strengthen proposal:

- ▶ Recommendations that do not increase equipment or installation costs.
- ▶ Test health and safety risks and develop mitigation strategies for recommendations.
- ▶ Examine barriers and develop opportunities to introducing high efficiency, cost-effective retrofit or replacement options.
- ▶ Demonstrate energy savings, greenhouse gas reductions and other benefits, opportunities and options for disadvantaged and low-income communities.
- ▶ Develop data and analysis for policy makers to encourage updating applicable codes and standards.



Group 3: Improve Hot Water Distribution System Efficiency in Existing Homes

Focus: Hot Water Distribution Systems

Funding Amount: \$1,500,000

Background:

- ▶ Domestic hot water contributes to as much as 50% of natural gas use in residential buildings.
- ▶ Retrofit opportunities for hot water distribution systems lagging.
- ▶ Under slab uninsulated hot water distribution piping in older homes causes heat loss.
- ▶ Hot water pipes often oversized leading to long hot water wait times at faucet.
- ▶ Few options for retrofitting under slab water distribution systems.



Group 3: Improve Hot Water Distribution System Efficiency in Existing Homes

Requirements:

- ▶ Applied Research and Development Project (TRL 3-5).
- ▶ Identify an innovative technology or retrofit solution that could be installed in-situ to minimize costs, while increasing pipe flow efficiency and reducing heat loss due to uninsulated pipes.
- ▶ Potentially recover the capital cost from energy savings and other quantifiable benefits within 10 years when compared to existing, uninsulated pipes.
- ▶ Test innovative approach in laboratory.
- ▶ Demonstrate in two existing single-family homes with uninsulated hot water pipes under slab foundation.
- ▶ Pilot test sites must be in PG&E, SDG&E or SoCal Gas natural gas service territory.



Group 3: Improve Hot Water Distribution System Efficiency in Existing Homes

Possible ways to strengthen proposal:

- ▶ Technology or solution that can be installed in-situ to minimize retrofit costs.
- ▶ Strategy for adding insulation to uninsulated pipes below grade.
- ▶ Identify manufacturing and installation partners that could aid in deployment to reduce capital and installation costs.
- ▶ Strategies for widespread deployment and applicability to residential, multifamily and commercial markets.
- ▶ Develop best practices guide for in-situ hot water distribution system retrofits for residential applications.



Group 4: Develop Advanced Insulation for Existing Homes Using Phase Change Materials

Focus: Advanced Insulation with Phase Change Materials (PCMs)

Funding Amount: \$1,570,000

Background:

- ▶ Older homes have little or no existing wall insulation.
- ▶ PCMs are low-volume and a versatile means for increasing insulation.
- ▶ PCM-enhanced insulation in walls, attics, and floors can reduce energy use.
- ▶ Research needed to identify which types and mixtures of PCMs work best for different CA climate zones.
- ▶ Innovative low-cost and non-intrusive installation techniques needed to encourage retrofits.



Group 4: Develop Advanced Insulation for Existing Homes Using Phase Change Materials

Requirements:

- ▶ Applied Research and Development Projects (TRL 3-5).
- ▶ Identify fire-resistive PCMs blended with varying types of insulation materials suitable for multiple California climate zones.
- ▶ Develop innovative installation techniques for adding insulation to existing walls and attic floors.
- ▶ Pilot test in three existing single-family homes of similar vintage with little or no existing wall insulation located in three different California building climate zones.
- ▶ Measure occupant thermal comfort pre- and post-PCM addition.
- ▶ Test sites must be in PG&E, SDG&E or SoCal Gas natural gas service territory.



Group 4: Develop Advanced Insulation for Existing Homes Using Phase Change Materials

Possible ways to strengthen proposal:

- ▶ Develop least intrusive and low cost installation techniques to cost-effectively add PCM-enhanced insulation to existing walls and attic floors.
- ▶ Identify PCM blends that have the most impact for reducing natural gas and GHG emission to California's natural gas IOU ratepayers.
- ▶ Compare performance, cost, energy and cost savings, and other benefits compared to standard insulation materials.
- ▶ Identify manufacturing and installation partners that could aid in deployment to reduce capital and installation costs.



Measurement & Verification (M&V) Requirements

All Groups

- ▶ Include M&V Plan in Project Narrative (Attachment 4).
- ▶ Use Attachment 13 (References for Calculating Energy End-Use and GHG Emissions) for energy saving estimates and GHG impacts.
- ▶ See Measurement and Verification Plan for measurement periods (Section II.B.3)

Group specific requirements

- ▶ Group 1:
 - Independent, third-party M&V
 - Minimum three months pre-retrofit period for baseline
 - 6-12 months post project installation
- ▶ Groups 2, 3 and 4:
 - Pre-retrofit periods of 4 -12 months, by group
 - 12 month post-retrofit M&V



Eligible Applicants

- ▶ **Entity types:** This is an open solicitation for public and private entities.
- ▶ **Agreement terms:** Applicants must agree to the CEC's PIER research terms and conditions: <http://www.energy.ca.gov/research/contractors.html>
- ▶ **Registered to do business in CA:** Applicants are required to register with the California Secretary of State and be in good standing to enter into an agreement with the Energy Commission: <http://www.sos.ca.gov>



Application Forms

1. Application Form (requires signature) (.pdf)
2. Executive Summary (.docx)
3. Fact Sheet (.docx)
4. Project Narrative (.docx)
5. Project Team (.docx, .pdf)
6. Scope of Work (.docx)
7. Budget (.xlsx)
8. CEQA Compliance Form (.docx)
9. References and Work Product Form (.docx, .pdf)
10. Contact List (.docx)
11. Commitment and Support Letters (requires signature) (.pdf)
12. California Based Entity Form (.docx)



Project Narrative (Attachment 4)

This is your opportunity to explain the entirety of the project.

Questions to address in your narrative:

- ▶ Why is your project important?
- ▶ What will you be doing in your project?
- ▶ How are you going to complete the project?
- ▶ How will this benefit natural gas ratepayers?
- ▶ Address the requirements in Project Focus section (II.B.2) for the research objectives of your project group
- ▶ Include information about permitting and CEQA review required for the project
- ▶ Respond to the Scoring Criteria (section IV.F).



Scope of Work and Schedule

Scope of Work (Attachment 6)

- ▶ Tell us exactly what you are proposing to do in your project.
- ▶ Identify what work products you will deliver to the Energy Commission.
- ▶ For each technical task, please include:
 - At least one product deliverable per task.
 - The research objectives for your project group, described in Section II.B.2.

Project Schedule (Attachment 6a), include:

- ▶ Product deliverables described in the scope of work.
- ▶ Realistic dates for product deliverables.



Budget (Attachment 7)

- ▶ Show use of Energy Commission funds and match funds
- ▶ Subcontractors receiving \$100,000 or more Energy Commission funds must complete a separate budget form.
- ▶ Submit in the format provided. **Do not delete sheets or rows, or use the hide/unhide functions.**
- ▶ Ensure that all rates provided are **maximum** rates for the **entire** project term.
- ▶ Use **unloaded** labor rates and show fringe benefits and indirect costs, if any.
- ▶ Prevailing wage: Projects that receive an award of public funds from the Energy Commission are likely to be considered public works and subject to prevailing wage requirements.



California Environmental Quality Act (CEQA) Compliance Form (Attachment 8)

- ▶ **Submittal:**
 - ▶ Attachment 8 is required for each applicant.
 - ▶ All applicants must complete this form, regardless of whether the proposed activity is considered a “project” under CEQA.
- ▶ **Timing:**
 - ▶ Failure to complete the CEQA process in a timely manner after the Energy Commission’s Notice of Proposed Award may result in the cancellation of a proposed award and allocation of funding to the next highest-scoring project.
 - ▶ Time is of the essence. The Energy Commission must approve proposed awards at a business meeting prior to June 30, 2019 to avoid expiration of the funds.
- ▶ **CEQA Compliance:**
 - ▶ To comply with CEQA, the Commission must have CEQA-related information from applicants in a timely manner.



Commitment and Support Letter Forms (Attachment 11)

- ▶ Follow guidelines provided for commitment and support letters.
 - Commitment letters are required for entities or individuals that are committing match funding, testing/demonstration sites, including the **Prime**.
 - Support letters describe a project stakeholder's interest or involvement in the project.
- ▶ All applicants must submit **at least one** support letter.
- ▶ Match funding must be supported by a match fund commitment letter.
- ▶ Project partners making contributions to the project must submit a commitment letter.
- ▶ **Format:** Limit to two pages per letter, excluding the cover page.



How will my Application be Evaluated?

Application Screening

Admin Screening Process

1. Energy Commission staff screens applications per criteria in Section IV.E.
2. Criteria are evaluated on a pass/fail basis.
3. Applicants must pass all screening criteria or the application will be disqualified.

Common Reasons for Disqualification

- ☐ Application is not submitted by the specified due date and time.
- ☐ Applicant did not sign the Application Form (Attachment 1).
- ☐ Application does not include one or more support letters.
- ☐ Application contains confidential material.



How will my Application be Evaluated?

Application Scoring

Scoring Criteria	Maximum Points
1. Technical Merit	20
2. Technical Approach	20
3. Impacts and Benefits for California NG IOU Ratepayers	20
4. Team Qualifications, Capabilities and Resources	15
5. Budget and Cost-Effectiveness	15
6. Natural Gas Research Program Funds Spent in California	5
7. Ratio of Direct Labor Costs to Indirect Costs	5
Total	100
Minimum Points to Pass	70

- Evaluation Committee applies the scoring scale to the scoring criteria.
- Applications must obtain a minimum score of 52.5 points for Criteria 1-4 in order to continue evaluation.
- Applications must obtain a minimum score of 70 points for Criteria 1-7 to pass.
- Please review the Evaluation and Award Process description (Section IV of the solicitation manual) to ensure your application provides a clear and complete response to each scoring criteria.



How will my Application be Evaluated?

Additional Bonus Points

Scoring Criteria	Maximum Points
8. Match Funding Above the Minimum	10
9. Disadvantaged or Low-Income Communities	5
10. California Based Entities Preference Points	5
Total Bonus Points	20

- Passing applications (score of 70 or more from Criteria 1-7) will be considered for bonus points. Criteria for bonus points include:
 - Match Funding Above the Minimum
 - Disadvantaged or Low-Income Communities
 - California Based Entities Preference Points

Disadvantaged and Low-Income Communities

- ▶ **Bonus Points:** Will be awarded to projects with 1) **all sites** located in disadvantaged or low-income communities and 2) that justify how the project will benefit the disadvantaged or low-income community
- ▶ **Definition:**
 - ▶ **Disadvantaged Community:** Highest 25% scoring census tracts in CalEnviroScreen 3.0.
 - ▶ **Low-income Communities:** Census tracts with median household incomes at or below 80% of the statewide median income.

Identification of Eligible Disadvantaged and Low-Income Communities

Please use ARB's Priority Population mapping tool to identify eligible areas:

<https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/communityinvestments.htm>

Eligible areas are
blue, red, or
red/blue hashed



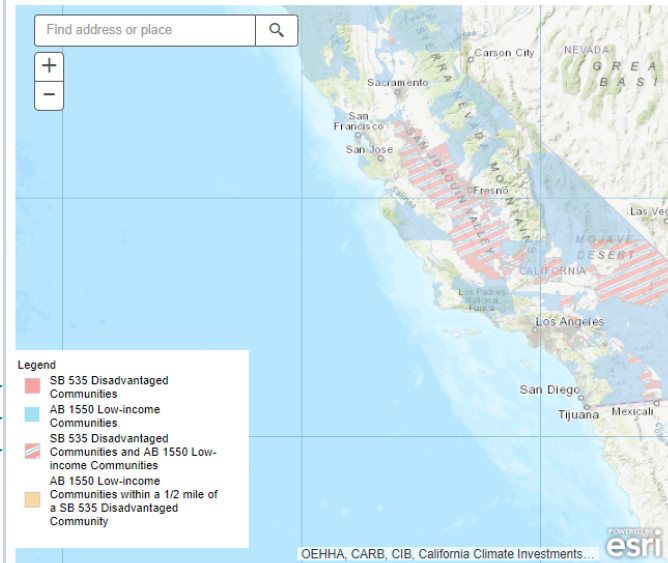
Priority Population Maps

This map shows disadvantaged communities and low-income communities as defined for California Climate Investments. In June 2018, the Office of Environmental Health Hazard Assessment (OEHHA) revised CES version 3.0, the tool that the CalEPA uses to identify disadvantaged communities. CalEPA released an updated list of disadvantaged communities based on the CES version 3.0 revision in June 2018.

CARB updated its priority population mapping resources in November 2018 to align with the revision of CES version 3.0. These data are available for download from this webpage in geodatabase, KMZ, and Excel spreadsheet format.

To see if a particular location is within a disadvantaged community or low-income community, either navigate to the desired location on the map, or search for the location in the search bar.

Please hit "enter" twice when searching addresses to ensure an accurate result. CARB is working to address this issue.



For full screen click: [here](#)



GFO Submission Requirements (Electronic)

- ▶ Preferred method of delivery is the Energy Commission Grant Solicitation System, available at: <https://gss.energy.ca.gov/>
- ▶ Electronic files must be in Microsoft Office Word (.doc, .docx) and Excel (.xls, .xlsx) formats, unless originally provided in solicitation in another format.
- ▶ Attachments requiring signatures (Application Form and Support/Commitment Letters) may be scanned and submitted in PDF format.
- ▶ First-time users must register as a new user to access system.
- ▶ "How to Apply" video:
http://www.energy.ca.gov/contracts/GSS/GSS_How_to_Apply_Video.mp4



GFO Submission Requirements (Hard Copy)

- ▶ Submit Applications with all attachments in the order specified by the due date and time listed in Section III of the manual.
- ▶ Application documents should meet formatting requirements, page limits, and number of copies specified in Section III.
- ▶ Provide one hard copy and one electronic copy (USB stick) containing electronic files of the application.



Next Steps After Grant Award

- ▶ **Notice of Proposed Award:** Shows total proposed funding amounts, rank order of applicants by project group, and the amount of each proposed award.
- ▶ **Agreement Development:** Proposal documents will be processed into a legal agreement.
- ▶ **Failure to Execute:** The Energy Commission reserves the right to cancel the pending award if an agreement cannot be successfully executed with an applicant.
- ▶ **Project Start:** Recipients may begin work on the project **only** after the agreement is fully executed (which means approved at an Energy Commission business meeting and signed by the Recipient and the Energy Commission).



Key Dates

Activity	Date
Solicitation Release	December 20, 2018
Pre-Application Workshop	January 11, 2019 at 10:00 a.m.
Deadline for Written Questions	January 14, 2019 at 5:00 p.m.
LinkedIn Networking Webinar	Thursday, January 17 at 2:00 p.m.
Anticipated Distribution of Questions and Answers	Week of January 28, 2019
Deadline to Submit Applications	February 15, 2019 at <u>5:00 p.m.</u>
Anticipated Notice of Proposed Award Posting	Week of March 4, 2019
Anticipated Energy Commission Business Meeting	June 12, 2019
Anticipated Agreement Start Date	June 30, 2019
Anticipated Agreement End Date	March 30, 2023

Questions and Answers

- ▶ Please introduce yourself by stating your name and affiliation.
- ▶ Keep questions under 3 minutes to allow time for others.
- ▶ Note that our official response will be given in writing and posted on the GFO webpage in two weeks.





Additional Questions

Please send all questions related to GFO-18-503 to:

Douglas Harvey

Commission Agreement Officer

1516 Ninth Street, MS-18

Sacramento, CA 95814

(916) 654-4747

(916) 654-4423 (fax)

Douglas.Harvey@energy.ca.gov

Deadline to submit questions:

Monday, January 14, 2019 5:00 PM